



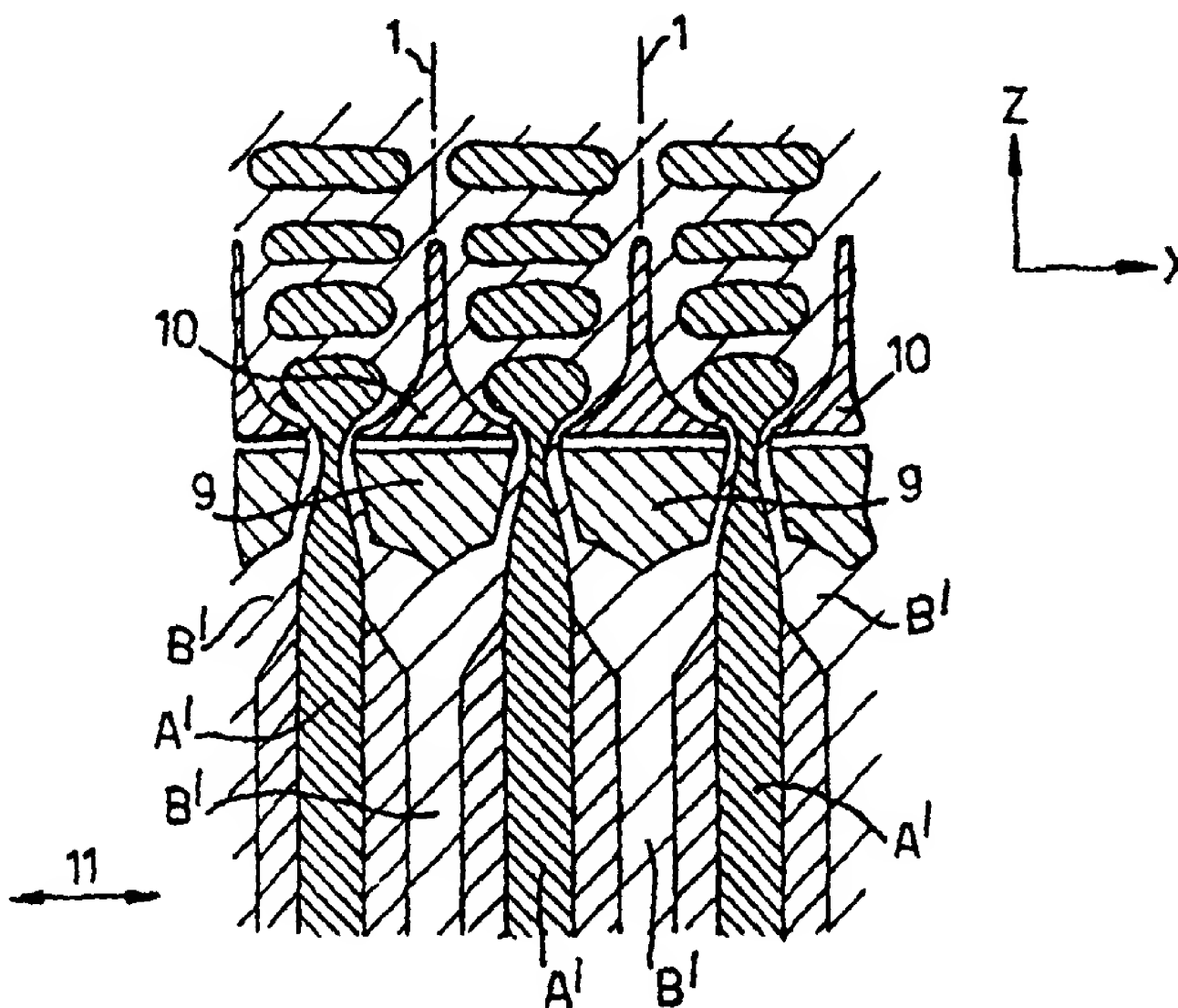
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(54) Title: FOOD PRODUCT WHICH ARTIFICIALLY HAS BEEN GIVEN A CELL-LIKE STRUCTURE BY COEXTRUSION OF SEVERAL COMPONENTS, AND METHOD AND APPARATUS FOR MANUFACTURING SUCH FOOD PRODUCT

(57) Abstract

Two or more different materials, especially food materials, are coextruded through adjacent orifices of an extruder. The flows of the two materials are cut in a direction transverse to the flow to form segments of flow. These segments are interspersed so as to join upstream and downstream of each segment of first material to a segment of a second material. Generally two rows of joined segmented flows are extruded side by side. Preferably between the two rows is formed a boundary cell wall which usually is transformed to a harder material after extrusion. Cell walls of the harder material may surround, in two or three dimensions, cells of softer or foamed material. Co-extrusion is carried out by a method in which the dividing members which segment the flows move across the extruder orifices in rhythm with the imposition of extrusion pressure on the material through the respective orifice. The dividing members may reciprocate or rotate relative to the orifices. Preferably the dividing members are fixed and the orifices are caused to move. In this case, the material may be supplied from respective reservoirs in fixed dye components, to the moving portion. The process and apparatus is particularly useful for producing confectionary products, for instance formed of chocolate, marzipan, or dough materials.



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INTERNATIONAL SEARCH REPORT

International Application No.

PCT/E 00/03713

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A23P1/12 A23J3/26 A23G3/20 A23G9/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A23P A23G A23J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, PAJ, EPO-Internal, FSTA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 1 077 072 A (NATIONAL DAIRY PRODUCTS CO.) 24 July 1967 (1967-07-24) figure 1 ---	1,41
X	EP 0 853 888 A (NESTLE SA) 22 July 1998 (1998-07-22) page 2, line 11 - line 49 page 3, line 21 - line 42 ---	99
A	US 3 511 742 A (RASMUSSEN OLE-BENDT) 12 May 1970 (1970-05-12) cited in the application the whole document --- -/--	1,41,44, 65,102, 103

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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International Application No
PCT/EP 80/03713

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 828 780 A (LUKER KEITH W) 9 May 1989 (1989-05-09) cited in the application column 2, line 20 -column 3, line 48 column 9, line 43 - line 58 ---	1,41,44, 65,102, 103
A	US 2 313 060 A (A.FRIEDMAN) 9 March 1943 (1943-03-09) cited in the application the whole document ---	1,41
A	US 5 209 156 A (LOMBARD MARCO H) 11 May 1993 (1993-05-11) column 2, line 50 -column 3, line 49 figures ---	1,41,44, 65,102, 103
A	WO 94 27801 A (KELLOG CO) 8 December 1994 (1994-12-08) figure 1 page 2, line 35 -page 4, line 13 ---	1,41,44, 65,102, 103
P,A	WO 99 34695 A (SCHLEBUSCH JOHANNES P ;EFFEM GMBH (DE); HEMUS JOHN (DE); RONKEN AN) 15 July 1999 (1999-07-15) cited in the application the whole document -----	1,41,44, 65,102, 103

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP 00/03713

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 1077072	A		NONE	
EP 0853888	A	22-07-1998	NONE	
US 3511742	A	12-05-1970	AT 336759 B	25-05-1977
			AT 82871 A	15-09-1976
			AT 319457 B	27-12-1974
			AT 299553 B	15-05-1972
			CH 568142 A	31-10-1975
			DE 1569335 A	16-12-1971
			DE 1779929 A	13-01-1972
			DE 1785567 A	05-01-1972
			FI 46926 B	02-05-1973
			FI 45631 B	02-05-1972
			GB 1103114 A	
			IL 21972 A	26-09-1968
			NL 6410073 A, B	01-03-1965
			SE 334462 B	26-04-1971
			SE 364531 B	25-02-1974
US 4828780	A	09-05-1989	NONE	
US 2313060	A	09-03-1943	NONE	
US 5209156	A	11-05-1993	US 5320793 A	14-06-1994
WO 9427801	A	08-12-1994	AU 7045894 A	20-12-1994
WO 9934695	A	15-07-1999	DE 19800390 C	05-08-1999
			AU 2409199 A	26-07-1999